F Schmeltzer 7/2/85

211

THE AIR DEFENSE ENHANCEMENT PACKAGE FOR SAUDI ARABIA

AUGUST 1981

THE AIR DEFENSE ENHANCEMENT PACKAGE

FOR SAUDI ARABIA

TABLE OF CONTENTS

Basic Paper:	The Air Defense Enhancement Package for Saudi Arabia: Background and Rationale
Tab A:	Technical Details of the Package
Tab B:	Security of AWACS and AIM-9L Technology

The Air Defense Package for Saudi Arabia

Background and Rationale

The proposed Royal Saudi Air Force (RSAF) enhancement package consists of 101 ship-sets of F-15 conformal fuel tanks (CFTs), 1,177 AIM-[redacted] SIDEWINDER missiles, 6 KC-707 aerial refueling aircraft (with an option for two more), and 5 E-3A Airborne Warning and Control System (AWACS) aircraft, all with associated spares, support and training, and related ground equipment. The total cost of the package is $8.5 billion.

The proposed sale to Saudi Arabia improves Saudi early warning and air defense against attacks on Saudi Arabia, particularly on Saudi oil facilities critical to the US and its Western allies as well as to the future prosperity of Saudi Arabia itself. Thus, the sale responds to the legitimate security requirements of a country that is central to the success of our regional security strategy. The sale will also serve our broader strategic interests, enhancing Gulf security by laying the groundwork for greater overall US-Saudi defense cooperation and for a more effective Gulf air defense network. Finally, it will demonstrate our reliability as a security partner, help rebuild confidence in the US as an arbiter of regional tensions, and increase Saudi willingness to work with us to achieve a durable Mideast peace.

The proposed package must be measured against four primary US objectives for the region:

-- Continuation of stable and secure access to regional oil.

-- Prevention of the spread of Soviet influence.

-- Security of friendly states in the region, including Israel.

-- Demonstration of our constancy and resolve in supporting overall regional security.

US policy must respond to events of the past several years which have adversely affected America's interests. These events include:

- The fall of the Shah and the resulting instability in Iran.

- The Iran-Iraq war, which demonstrated the willingness of regional adversaries to attack each other's oil facilities.

- The upgrading of Soviet power projection capabilities, a growing Soviet naval presence in the Indian Ocean, and increased Soviet military presence in the region (e.g., Afghanistan, South Yemen, Ethiopia, Syria, and Libya).

- The availability and the active use of Soviet proxies in local conflicts and in the support of Soviet clients; and

- The Soviet willingness to use their own forces directly, as they have done in Afghanistan.

In this environment, Saudi Arabia finds itself threatened from a variety of sources. These threats are worsened by the Saudi recognition of its own limited military capability to defend its vast and coveted petroleum resources. As the anti-communist leader of the conservative Gulf states and as the largest oil producer in the Persian Gulf, Saudi Arabia is vulnerable to military threats arising out of the Iran/Iraq conflict, from radical states in the area, and especially from Soviet or Soviet-inspired direct and indirect military action.

In response to these threats, the proposed air defense package makes a major contribution to Saudi security and to our vital regional security objectives.

A. Security of the Flow of Oil

The Persian Gulf is the major source of the world's oil exports. Saudi Arabia is by far the largest oil producer in the Gulf, accounting for some 63 percent of the total Gulf production. Loss of Saudi oil for a prolonged period of time would have a disastrous impact on the economy of the West. Control or denial of access to Saudi oil by the Soviet Union or other hostile powers would undermine our security worldwide and risk splintering the NATO Alliance.

At the same time, these oil facilities are highly vulnerable to air attack. They are even now within range of Iranian and other potentially hostile forces. Nearly all of the Saudi oil pumping stations, crude oil processing facilities, refineries, storage facilities, and loading terminals are located within 40 miles of the Persian Gulf coast in the Dhahran - Ras Tanura areas. Destruction of certain of these facilities could cut off completely the flow of oil for more than a year. Clearly, it is imperative for the economic security of the West that these oil facilities be protected.

The problem of defending the oil fields is greatly complicated by the demographic and geographic realities of Saudi Arabia. Saudi Arabia is a country equal in size to all of the United States east of the Mississippi. At the same time, it has a small population of under six million people with which to defend itself. Thus, Saudi Arabia must maximize the efficiency of its limited armed forces through the use of high technology.

The chances of success of an air attack against Saudi Arabia are increased because the Saudi terrain is flat, particularly in the area of the oil fields. It presents no features which would enhance the employment of ground-based radars. Moreover, the oil fields are on the Persian Gulf coast, so that an enemy air force would not have to cross any portion of Saudi Arabia to attack critical targets.

With current Saudi capabilities, an attack of low-flying aircraft would not be detected by ground-based radar until it was within 2-4 minutes of the oil fields. Even under the best conditions of training and readiness, no air force in the world could respond to this threat in time to prevent a successful attack on the oil facilities. It does not serve US national interests, let alone those of Saudi Arabia, for the Royal Saudi Air Force to be able only to engage an enemy after it has destroyed one of our most essential energy sources.

Given the nature of our interest in the continued flow of oil, the threat to that interest, and the inadequacies of the current Saudi air defense capability, it is vital to help Saudi Arabia improve its air defense by approving the four items in the proposed air defense enhancement package. (See Tab A for details on each component.)

-- AIM-9L SIDEWINDER Missiles

The Saudi Air Force must be able to defend the oil facilities against a numerically superior attacking force. With the AIM-9P SIDEWINDER missile currently in the Saudi inventory, Saudi aircraft must maneuver to a position behind the target in order to launch their missiles. AIM-9L missiles will allow the Saudi Air Force to intercept an attacking enemy from all directions, including head-on. This capability will greatly improve the chances of shooting down attacking aircraft before they are able to bomb the oil facilities or other Saudi targets. (Quantity to be sold: 1,177. Total cost: $200 million.)

-- Conformal Fuel Tanks (CFT) and KC-707 Tankers

Saudi F-15s must be based so that they are not vulnerable to a surprise enemy attack and so that they can sustain combat even if bases in eastern Saudi Arabia are put out of action. This requires that the Saudi Air Force station some of its F-15s at Taif and Khamis Mushayt air bases in the western part of the country. In order for these western-based aircraft to provide extended air cover for the oil fields in the East, they must have increased range and an aerial refueling capability. Conformal Fuel Tanks add substantially to the range of each F-15, while KC-707 tankers allow F-15s to remain on-station for extended periods of time. Extended range and endurance of F-15 aircraft will make optimal use of the limited Saudi defensive resources. (Quantity to be sold: 101 sets of CFTs, 6-8 KC-707. Total cost: $110 million for CFTs, $2.4 billion for 8 KC-707s.)

-- Airborne Warning and Control System (AWACS)

AWACS is the most crucial part of the package because it provides the early warning without which there could be no successful defense of the oil facilities. AWACS will allow the Saudi Air Force to detect attacking enemy aircraft, depending on the altitude, 150 miles or more from the oil fields, a seven-fold improvement over ground-based radars. The Saudi Air Force will then have enough time to scramble interceptor aircraft which can, with AIM-9L missiles, engage the enemy head-on, preventing it from reaching the oil fields. AWACS will also provide enough warning time to alert surface-to-air missile batteries and to allow them to shoot down attacking aircraft that might penetrate the screen of F-15 interceptors. Without AWACS, this early warning capability will not exist, no matter how many ground radars might be employed. AWACS will be an important part of the Saudi air defense system, which will include ground-based radars, command and operations centers, and communications facilities. (Quantity to be sold: 5. Total cost: $5.8 billion.)

B. Prevention of Soviet Expansion

Over the past decade, the Soviet Union has relentlessly sought to improve its position in the region. Basic Soviet goals in the Southwest Asia region during the latter half of the 1980s will remain essentially the same as they are today. These are:

1) To increase Soviet influence in the region and to decrease that of the West;

2) To destabilize anti-Soviet governments in the region and replace them with governments that are pro-Soviet;

3) To improve Soviet military capabilities to threaten Western sea and air links from the Persian Gulf in order to gain concessions from countries in the region and to destabilize Western Europe;

4) To assist allies with Soviet military forces to preserve pro-Soviet governments;

5) To maintain a credible military posture in and near the region, thereby ensuring a Soviet stake in regional political alignments and events.

Although it has experienced setbacks in Egypt, Sudan, and Somalia, the USSR has increased its influence in Syria, retains influence in Iraq, has improved its strategic position in the Horn of Africa and on the Arabian Peninsula, and has moved in force into Afghanistan. The turmoil in Iran and Lebanon offer additional opportunities for the spread of Soviet influence. In this environment, the need for a vigorous US security policy for Southwest Asia and the Persian Gulf is obvious.

An important part of this effort is the perception by regional states that the US is prepared to help them meet their legitimate defense requirements. Failure to allow the Saudis to buy the equipment both we and they agree they need will be seen as a lack of a serious commitment by the US. Such an impression will make it far less likely that Saudi Arabia and others will agree to the kinds of security cooperation, joint planning, combined exercises, and advance preparations needed if the US is to defend shared interests in the Persian Gulf region. Saudi Arabia has identified the air defense package as an indicator of American concern for Saudi security and of our "special relationship." This perception is reinforced by the strong military contribution which we agree this sale makes to our collective interests in the region.

In addition, Saudi acquisition of AWACS and associated ground equipment will provide the basis for a comprehensive military command, control and communications and logistics infrastructure which could be compatible with US tactical forces capabilities and requirements and could become the nucleus of support for US forces if we are asked by regional states to respond in a crisis. The sale also serves our broader strategic interests in the Gulf region by establishing a foundation for stronger US-Saudi defense cooperation, and for a more effective, cooperative air defense network in the area, with AWACS as the keystone element. Both of these advances will help deter Soviet aggression in the Gulf.

Failure of the US to respond to what we and the Saudis agree are legitimate security requirements will impel Saudi Arabia to look elsewhere for support; European suppliers are eager to meet Saudi air defense needs. (The Saudis have shown interest in the British NIMROD and the French MIRAGE 2000/4000.) Failure of the US to complete the sale would result in a weaker US-Saudi security relationship or, worse, could incline Saudi Arabia to seek an accommodation, over the long term, with radical regional forces that are inimical to US interests.

C. Threat to Israel

The security of the State of Israel has been and will continue to be a paramount interest of the US. The air defense package has been designed to meet Saudi defense requirements while minimizing the impact on the Arab-Israeli balance.

We recognize that the proposed air defense enhancement package for Saudi Arabia is of concern to Israel. However, the effect of the sale on Israeli security will be limited by several important factors:

-- The Superiority of the Israeli Air Force

Israel has increased its margin of military superiority over its Arab adversaries since the 1973 war. With or without the enhancement items, the Saudi Air Force realistically poses no significant threat to the security of Israel. This assessment is true even in the context of a general regional conflict. The air defense package helps Saudi Arabia to defend itself against regional threats but will not measurably increase Saudi offensive potential. The Israeli Air Force is far more capable than other, more likely Saudi adversaries such as Iran or South Yemen.

Saudi Arabia fully recognizes that Israel's air defense system (including pilots, aircraft, surface-to-air system, and crews) is exceptionally capable, and that undertaking Saudi missions into Israeli airspace, either to engage Israeli aircraft or strike Israeli targets, would be prohibitively costly. Moreover, Saudi aircraft are already theoretically capable of reaching Israeli targets from existing Saudi airbases, with or without CFTs or tanker aircraft.

-- The Topography of the Region

As mentioned, AWACS deployed near the oil fields will greatly increase Saudi warning of an air attack. To provide coverage of Israel, however, the AWACS would have to be deployed along Saudi Arabia's northernmost border, or over Jordan or Syria. Even then, because Israeli and Jordanian terrain is very rugged, AWACS radar coverage would be masked in some areas. Consequently, Saudi deployment of AWACS near Israel would provide little improvement in Saudi warning time, but would dramatically increase the vulnerability of AWACS to Israeli attack and destruction.

Five AWACS aircraft would provide the Saudis with the capability to maintain one continuous (24-hour) AWACS orbit, and that for a limited period. This fact means that any AWACS deployments to other parts of Saudi Arabia would necessarily come at the expense of full coverage of the Eastern province.

-- Limitations of AWACS

Saudi AWACS will be an overwhelmingly defensive system; it is essentially a flying air defense radar. AWACS cannot detect ground targets, nor can it collect electronic, signal, or photographic intelligence.

If the Saudis chose to expose their AWACS by operating close to Israel, the aircraft could collect data on Israeli air activities. However, this information would be highly perishable, most of it being valuable only for a few minutes following its collection. Therefore, without a sophisticated, computerized communications network in other Arab countries--which only the US could provide--little, if any, of this information could help in a collective Arab attack on Israel. Information derived from AWACS could be sent in the clear to other Arab forces, but such communications could be easily jammed by Israel.

Data on advancing Israeli aircraft could not be supplied in a timely manner or with enough accuracy to enable other Arab forces to react effectively. Although AWACS derived information could provide some warning of preemptive Israeli airstrikes, such warning would not alter the overall Israeli military superiority or the likely outcome of a war between Israel and the Arab states.

-- US Personnel

The nature of the AWACS is so complex that US contractor personnel will be required to maintain key elements of the system for its entire life. It is therefore extremely unlikely that any unauthorized use of AWACS could go undetected. The withdrawal of US support for the Saudi AWACS would quickly result in the system becoming non-operational.

Thus, the proposed air defense package has the unique qualities of being most effective against hostile aircraft over the oil fields, while being of marginal value in any hypothetical war against Israel.

Conclusion

The proposed sale of the air defense enhancement package to Saudi Arabia serves our national security interests in five ways:

- First, the sale clearly helps the Saudis defend themselves. The AWACS and other elements will bolster Saudi early warning and air defense capabilities and enable them to defend their oil facilities from air attack.

- Second, the sale will help restore our credibility as a reliable security partner in the region, something that is essential if local countries are to believe that the benefits of embracing our strategy outweigh the costs.

- Third, it helps meet some of our own military needs in the Gulf. To be able to respond to air threats to Gulf oil facilities if called upon, we must have available an early warning air defense network. The Saudi AWACS could be the foundation of such a network.

- Fourth, with AWACS and the other enhancements, we will be providing an extensive logistics base and support infrastructure, including spare parts, facilities, trained personnel, and specialized test and maintenance equipment which is fully compatible with equipment which would be deployed with US forces. Having such access in Saudi Arabia would therefore facilitate deployment of US tactical air forces to the region in time of need, if so requested.

- Fifth, insofar as the sale highlights our commitment to Saudi security and is also specifically tied to our broader strategy of countering Soviet and Soviet-proxy threats in the region, it also provides a positive foundation for more extensive US-Saudi security cooperation over time.

We cannot force our regional friends to cooperate directly with us. But we can and must take steps with each that demonstrate our seriousness and our commitment to regional security. This package not only will improve the defensive capabilities of key regional states to protect our mutual vital interests, it will also contribute to restoring the image of US power and the value of US friendship in the area. In the long run, it is the restoration of US power and credibility that offers the best guarantee against Soviet threats to the region and radical efforts to undermine the peace process. Selling AWACS and the other enhancement items to Saudi Arabia constitutes a necessary step in the process of working toward these broader goals.

CONFORMAL FUEL TANKS (CFTs) FOR THE F-15

CFTs are streamlined fuel tanks attached to the sides of the F-15 fuselage, with an empty weight of about 2,000 pounds and a total fuel capacity of approximately 9,750 pounds per set.

The CFTs attach to the aircraft in a manner that enables rapid installation and removal (about 90 minutes are required to install and check out CFTs).

The CFTs retain the capability to mount and fire four AIM-7 SPARROW air-to-air missiles, similar to the fuselage installation. In addition, the CFTs have been designed with an optional capability to carry air-to-surface munitions.

Changes to the USAF and Saudi F-15s are required to allow the CFT to carry air-to-surface munitions. The Saudis could not perform these modifications without US approval and assistance.

-- Availability: USAF production contract is expected to be awarded in January 1982 for initial quantity of 75 ship sets pending Congressional approval. The USAF plans to fund additional CFTs in FY 83-87.

(1) US First Delivery Date: June 1983.

(2) Production Availability: 27 months after contract award.

(3) Commercial Availability: Yes.

(4) Estimated Unit Cost: $900K (does not include spares, support equipment, tech data, training).

(5) Other Purchasers: Israel.

-- Anticipated Deployment Locations: RSAF F-15 Operation Locations: Dhahran, Taif, and Khamis Mushayt.

-- Quantity Required: 101 ship sets.

-- Additional Manpower and Training Requirements: None.

-- Estimated Program Cost: $110 million.

THIS MICROFICHE HAS BEEN
PRODUCED FROM THE BEST
AVAILABLE DOCUMENTS

MICR04.FRM.

KC-707 TANKERS

The KC-707 is an aerial tanker version of the Boeing 707 jet transport. The KC-707 provides in-flight refueling for Saudi F-5 and F-15 aircraft, with both boom and probe and drogue refueling capabilities. The KC-707 will be produced on the same production line as the E-3A AWACS and will share airframe, engines, and maximum commonality of aircraft systems.

-- Availability: KC-707 aircraft will be available through FMS beginning in 40-44 months, at a rate of approximately one aircraft per month. Total program includes:

(1) Eight new production KC-707 aircraft;

(2) Three years of initial spare parts;

(3) Common and peculiar support equipment;

(4) CONUS training;

(5) Three yars of contractor aircraft maintenance and aircrew and maintenance training.

-- Anticipated deployment location: Initially at Riyadh (approximately one year) with later move to Al Kharj which will be the permanent main operating base.

-- Quantity required: Saudi Arabia has requested six KC-707s with an option to buy two additional aircraft.

-- Additional manpower and training requirements: Aircrew: 96, two crews for each of eight aircraft. Personnel can be converted from C-130 program plus new pilot training assets.

-- Estimated program cost: $2.4 billion.

E-3A AIRCRAFT

The E-3A is a modified Boeing 707 aircraft with added surveillance radar, computer and communications equipment. It provides an overall air surveillance capability with command, control, and communication functions, and can detect and track aircraft at high and low altitude, over both land and water. The E-3A airborne warning and control system provides real time and longer-range target detection, identification, and tracking.

The most prominent feature of the E-3A is the large rotating rotodome that houses radar antennas. The E-3A has been fitted with an air refueling receptacle that allows extended time on station.

-- Radar detection range for low-flying (200 ft altitude) small fighter aircraft is 175NM from normal AWACS mission altitude (29,000 ft.). Medium-size targets can be seen at 240NM if they are above the radar horizon. Detection range for high-altitude bomber-size target aircraft is 360NM.

-- Ground targets (tanks, trucks) cannot be detected or tracked. Only airborne targets moving at speeds greater than 80 mph are seen.

-- Small maritime targets can be detected and tracked in low-moderate seas; medium-large maritime targets can be detected and tracked in moderate-high seas.

-- Normal crew size is 17: four inflight crew, and 13 in mission crew (controllers and technicians).

-- Availability:

(1) The E-3A aircraft will be available through FMS beginning 48 months after approval.

(2) Aircraft cost is estimated to be $1.7 billion including spares, tech data, support equipment, training.

(3) Other Purchasers: NATO.

-- Anticipated Deployment Location: Riyadh for approximately one year and then Al Kharj.

-- Quantity Required: RSAF has requested five E-3A aircraft.

-- Estimated Additional Manpower Requirements:

a. Aircrew - 170, two cockpit and mission crews for each aircraft.

b. Five E-3A aircraft require approximately 360 maintenance personnel. This would allow Saudi Arabia to maintain one 24-hour AWACS orbit for one week during periods of high tension.

-- Estimated Program Cost: $5.8 billion.

AIM-9L MISSILE

The AIM-9L is a short range, air-to-air infrared (heat-seeking) missile. It incorporates an all-aspect guidance and control system which allows head-on attack. The major improvements of the AIM-9L over the AIM-9P, currently possessed by the Saudis, include: improved seeker, providing all-aspect and better look-down/shoot-down capabilities; increased maneuverability; and improved warhead lethality.

-- Availability: Currently in production.

(1) US Deployment Date: Currently in active inventory.

(2) US Initial Operational Capability Date: Both Air Force and Navy have current capability.

(3) US Quantity on Hand: Approximately 4,000 (USAF and USUN inventories).

(4) Production Availability: 30 months.

(5) Estimated Unit Cost: $98,000 (does not include spares, support, training, etc.).

(6) Other Purchasers: Israel, UK, Germany, Norway, Italy, Japan, Australia, and Greece.

-- Anticipated Deployment Locations: Dhahran, Taif, and Khamis Mushayt.

-- Quantity Required: 1,177.

-- Estimated Additional Manpower Requirements: nine (9) contractor personnel based on increased stockpile requirements.

-- Estimated Additional Training Requirements: Minimal aircrew and ground handling/load crew training procedural changes from AIM-9P-3.

-- Estimated Program Cost: $200 million.

AWACS AND SAUDI GROUND ENVIRONMENT

Saudi Arabia plans to upgrade the existing ground environment portion of its air defense system, which was acquired in the late 1960s. The ground environment improvements package, encompassing modernization of the Royal Saudi Air Force (RSAF) Command, Control and Communication (C^3) system will be included in the full RSAF enhancement package sent to Congress.

These ground environment enhancements are necessary, in combination with the 5 E-3A AWACS aircraft, to provide the RSAF with an effective, fully integrated air defense surveillance and C^3 system.

The planned improvements in the Saudi ground environment system are based on a two-year C^3 master plan study conducted by the US Air Force for the RSAF.

The planned upgrade includes new hardened command and control (C^2) facilities; new data processing and display equipment for those facilities; and improvements to the ground radar surveillance network through replacement of existing radars, and addition of new sites to extend coverage.

The AWACS would significantly augment ground environment surveillance capability and provide C^2 flexibility through its interface with the ground environment by means of Ground Entry Stations. These Ground Entry Stations, located at C^2 facilities and other selected locations for optimum radio coverage, provide communications and processing equipment for data exchange compatibility between AWACS and ground environment data processing systems.

The ground environment improvements will take about six years to complete. The total cost of this program to the Saudis is estimated to be $1.5 billion. The Saudis plan for the radars to be jointly acquired and operated by the RSAF (10 systems) and the Presidency for Civil Aviation (12 systems).

SECURITY OF AWACS AND AIM-9L TECHNOLOGY

The sale of the AWACS and AIM-9L missiles to Saudi Arabia does not constitute a high risk of loss of sensitive technology.

The AWACS is a 1960s design system; the radar (pulse doppler) is textbook technology and the computer is commercially available. The Soviets have most assuredly measured all of the external observables of the AWACS, including antenna pattern, frequencies, pulse repetition rates, modes, output power, bandwidths, and azimuth/elevation slew rates. What is sensitive is the detection log and methods buried in the software of the radar data correlation computer. This software is the heart of the system.

The radar data correlation computer, manufactured by Westinghouse, is programmed in a "machine language" unique to AWACS only. The source code and algorithms that made this program are not required by the user, and consequently are not delivered to the USAF; nor will they be delivered to NATO or Saudi Arabia. What is delivered bo the user is the magnetic tape program for loading the computer. Experts differ on how long it would take a team of expert engineers to decipher these tapes and reconstruct the logic, but they agree it would require a massive effort, taking up to several years. However, unscrambling the system software in this fashion could be of very limited benefit since within days we could modify the logic parameters of the software and reduce any probability of Soviet exploitation.

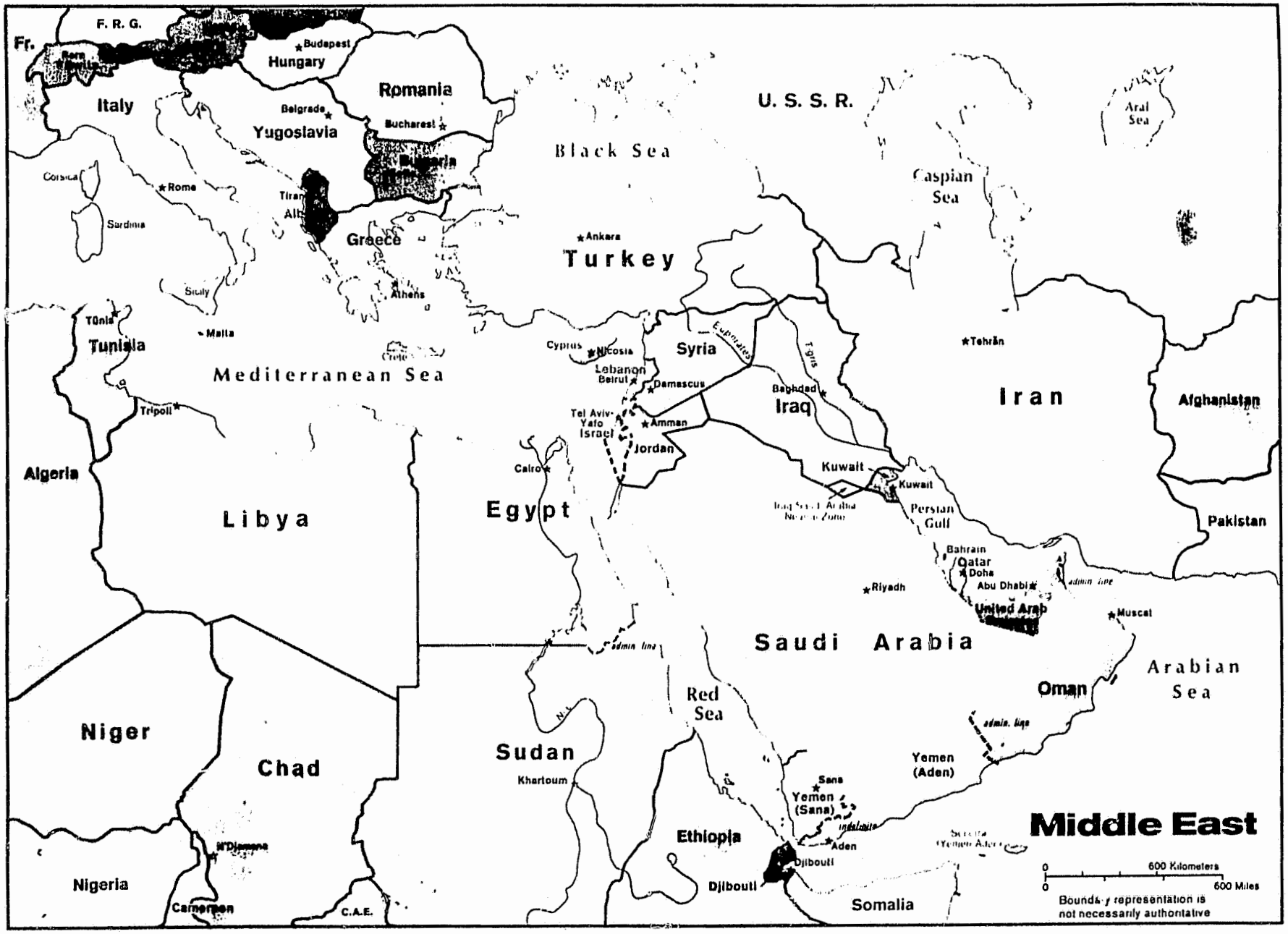
Even if the computer language and software were deciphered, it would not help the Soviets exploit the surveillance radar. Soviet doctrine (and jamming reliability) depends very much on the use of noise jamming. Knowledge of the software logic is not essential to this objective. Only if the Soviets were using narrow band "logic exploitation" jamming would knowledge of the software help, but with logic exploitation, the adversary has no way of knowing whether or not his jamming is being effective. Because of this total lack of jamming reliability, logic exploitation of a surveillance radar would almost certainly be avoided.

The new Soviet AWACS-type aircraft, a derivative of the CANDID transport aircraft, has been under development for some time and is expected to have a capability similar to our own AWACS. This Soviet system should be operational quite soon.

The Saudis recognize that we are offering to sell them advanced equipment which incorporates sophisticated technology. They therefore have agreed to security arrangements that go far beyond normal procedures to safeguard this technology. In addition to

the specific security clauses of the contract between the US and Saudi Governments (the Letter of Offer and Acceptance, or LOA), there is a General Security of Information Agreement being developed which provides specific procedures for access to classified information, periodic inspections, and physical security, as well as assurance that the Saudi Arabian Government will provide a degree of protection to any classified information equivalent to the protection afforded it by the US Government.

While compromise of the AIM-9L missile technology could have a negative impact, the Soviets are believed to have a missile in development that will give them an AIM-9L-class capability in the near future. The sale of the AIM-9L to Saudi Arabia will have the same stringent safeguards as AWACS to protect the security of the technology. The AIM-9L has already been released to NATO, Japan, Australia and Israel.


F. R. G.
Fr.
Budapest
Hungary
Romania
Italy
Belgrade
Yugoslavia
Bucharest
U. S. S. R.
Black Sea
Aral Sea
Caspian Sea
Corsica
Rome
Sardinia
Greece
Ankara
Turkey
Sicily
Athens
Tunis
Tunisia
Malta
Cyprus
Nicosia
Syria
Euphrates
Tigris
Tehrān
Mediterranean Sea
Lebanon
Beirut
Damascus
Baghdad
Iraq
Iran
Afghanistan
Tripoli
Tel Aviv-Yafo
Israel
Amman
Jordan
Algeria
Cairo
Kuwait
Libya
Egypt
Persian Gulf
Pakistan
Bahrain
Qatar
Doha
Abu Dhabi
Riyadh
admin. line
United Arab
Muscat
Saudi Arabia
Arabian Sea
Oman
Niger
Red Sea
Chad
Sudan
Khartoum
Yemen (Aden)
Sana
Yemen (Sana)
Ethiopia
Aden
Djibouti
Somalia
Nigeria
Cameroon
C.A.E.
Middle East
0 600 Kilometers
0 600 Miles
Boundary representation is not necessarily authoritative

503825 7-78